



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/635,777

08/07/2003

Akiyoshi Mikami

50024-015

1705

7590 03/05/2007
McDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

THOMPSON, CAMIE S

ART UNIT

PAPER NUMBER

1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

03/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/635,777

Applicant(s)

MIKAMI, AKIYOSHI

Examiner

Camie S. Thompson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Afterfinal Amendment filed January 30, 2.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11, 13 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11, 13-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Examiner regrets the untimely reopening of prosecution.
2. Applicant's amendment and accompanying remarks filed January 30, 2007 are acknowledged.
3. Examiner acknowledges amended claim 11.
4. Examiner acknowledges cancelled claims 1-10, 12 and 15-20.
5. The rejection of claims 1-9 and 11 under 35 U.S.C. 102(b) as being anticipated by Okajima et al., U.S. Patent Number 5,700,591 is overcome by applicant's amendment.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okajima et al., U.S. Patent Number 5,700,591 in view of Yano et al., U.S. Patent Number 6,699,596.

The Okajima reference discloses a light emitting device comprising a phosphor thin film that can be used as a light-emitting layer (see column 2, lines 38-44). Additionally, the reference discloses that the light-emitting phosphor thin film has a thickness of from 1 nm to 50 nm and is sandwiched by barrier layers composed of a material having an energy gap which is greater than that of the phosphor thin film as per instant claim 4 (see column 1, line 65-column 2, line 4). Also, the Okajima reference discloses that the barrier layer is composed of a CaS thin film of a

Art Unit: 1774

thickness of 200 nm as per instant claims 8-9 (see column 3, lines 25-27). Figure 1 of the reference discloses 2a as the barrier layer (underlayer) and 3a as the phosphor thin film (light-emitting layer) as per the instant claims. Column 2, lines 30-64 of the Okajima reference discloses that the materials having the identical structure for both the phosphor thin film and for the barrier layer increase light-emitting brightness and efficiency. The reference also discloses in column 2 that better light emission characteristics were observed when the phosphor thin film and the barrier layer had rock salt type crystal structures. The phosphor thin film is comprised of a compound of alkaline earth metals and an element of group VI. Okajima discloses in Figure 1 that the luminescent center is silver but does not disclose a luminescent center of europium or cerium or manganese. Yano discloses an EL device comprising a phosphor thin film (see column 3, lines 1-16). Additionally, the Yano reference discloses that the light emitting device comprising a first insulating layer (underlayer) and a light-emitting layer (phosphor layer) (see column 6, lines 33-41). The reference also discloses that the phosphor has a luminescent center that can be europium (see column 3, lines 1-24). Europium is well known in the art as a luminescent center for phosphor materials as shown by the Yano reference. Therefore, it would have been obvious to one of ordinary skill in the art to use europium as the luminescent center for the phosphor in the Okajima reference in order to have an thin film electroluminescent device that has high luminescence.

8. Claims 13 and 14 are allowed. The prior art does not provide for the recited inorganic electroluminescent device wherein the phosphor layer contains $Mg_{1-x}Ca_xS$ with europium as the luminescent center.

Art Unit: 1774

Response to Arguments

9. Applicant's arguments with respect to the instant claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


RENA DYE
SUPERVISORY PATENT EXAMINER
AU 1774